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GASTRIC POLYPOSIS*

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The relative frequency of benign mucous membrane tumors of the stomach is difficult to estimate, as no complete statistics are available, but they are not as rare as many clinicians have believed and are common enough to demand earnest consideration of the surgeons who should appreciate their relation to carcinoma of the stomach.

Menetrier designates these tumors as polyadenomata and divides them into a pedunculated type "polyroid polyadenomata" and the fan-shaped flat type "polyadenomes en nappe."

Balfour reports 1 case in 8000 abdominal sections for gastric lesions, Ebstein 14 cases in 600 necropsies, and Doering has collected 50 cases of the gastrointestinal tract. Of these, 33 occurred between the ages of 10 and 40 years. Verse gives similar figures for 45 cases. Men are more often affected than women, the rates being about 3:2.

Hauser and others believe that these growths develop on the basis of chronic inflammation. Kontetzny has conclusively demonstrated the gradual transition from gastritis through adenoma to carcinoma. Otto reports a case in which a thick piece of wood was swallowed causing marked gastric symptoms for a year and finally resulting in death. Necropsy showed the wood in the center of a large adenoma. Zabel found large numbers of megastoma intestinale in the tufts of a large gastric papilloma with malignant degeneration.

As far as can be ascertained from available statistics, carcinomatous degeneration of these tumors occur in 60% of the cases which makes them important as precancerous growths. Many authorities believe that most gastric cancers arise either from actual adenomata or from their earliest stages. The importance of the diagnosis of these lesions is hence apparent and it is only by means of a careful roentgen examination that a positive diagnosis can be made, except in those rare cases where a piece of the tumor has been vomited or obtained during a gastric lavage. The pathological report of the case here reported is typical of the pathology of these tumors. The symptoms in these cases are typical of malignancy, i. e., nausea, vomiting, achylia, occult blood in the stools, with secondary anemia. However, there is not the marked loss of weight or anorexia as in malignancy and there is at times a large quantity of an egg white like mucus in the vomitus.

The x-ray picture is fairly typical (Fig. 1), and while it may be confused with malignancy, a careful ex-

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Fig. 1.—Gastric Polyposis. Showing sharply limited defect in greater curvature shadow, with outer line of stomach wall preserved.

amination will differentiate between the two conditions. In malignancy, there is a definite irregular non-lobulated mass projecting into the lumen of the stomach and the wall of the stomach (to which it is attached) is entirely obliterated. In the polypoid growths the mass is lobulated and mottled in appearance and the curvature to which the tumor is attached is seen to be intact. While this may seem to be broken in places, one can still trace out the fine lines showing the remains of the curvature. Also, under the fluoroscope, one can see the opaque meal run over and around the lobulated masses much as water runs around the boulders in a stream.

The following case report is of interest as the patient was operated on 10 months previous for an ulcer of the pylorus. The pathological report at that time showed no evidence of a polypoid or adenomatous growth.

V. T.—Age 62, male, Swedish laborer. Complaint: swelling of legs, continual burning in the perineal region; frontal headache.

F. H.—Father dead, 72, accident. Mother dead, 68, old age. One brother dead, about 40, typhoid. One sister dead, age 5, cause unknown. One sister dead, 20, heat stroke. One sister dead, 25, pneumonia. One sister dead, 60, cause unknown. No relative has ever had cancer, tuberculosis or insanity. No history of kidney or heart disease.

P. H.—Lived up to age of 14 in Sweden; 14 to 23 in Kansas (farm laborer); 23 to 62 in California (farm laborer). Measles about 10; typhoid about 25, in bed three weeks; gonorrhea about 25; lues about 35 (chancre).

Uses notobacco, alcohol or drugs; coffee three times a day. Has had no accidents. Had prostatectomy in 1916. Operated for ulcer of stomach at University of California Hospital, in January, 1921. Best weight was 190 pounds at 30 years; average weight 175 pounds; present weight 158 pounds.

P. I.—Swelling of the lower extremities. This began five years ago, nine months after prostatectomy. First noticed swelling in both ankles. This would go down during night and reappear the next morning, but there have been periods of months when there would be no swelling at all. During the past six months, swelling has been more persistent and more extensive. During past month swelling has been persistent both by day and at night. Skin over swollen areas feels hot and itches. No pain present. Eyelids have been more or less swollen during past two months. Hands have been swollen during the past week.

Burning pain in perineal region. Pain came on gradually, following the prostatectomy and has been persistent to date. It has progressively increased in severity. Pain relieved by urethral irrigations and cautery treatment at Stanford clinic.

Headaches. Generally come on after eating. Frontal in type. Began four months ago. Getting progressively more severe. Duration variable.

Systems: Circulatory. Short of breath, palpitation of heart after eating and exercise; precordial pain at times, slight while lying down. Respiratory; no cough, catches cold easily; no hemoptysis. C. S. S.: Appetitte good; nauseated at times after meals; no vomiting; no abdominal pain; no diarrhea; no tar colored stools; no blood passed; somewhat constipated. G. U. S.: Nocturia, V; burning on urination; no blood passed; no sexual desire; some hesitancy; dribbling after urination; no discharge. C. N. S.: No blindness in any of the fields; no periods of blurred vision; no scotomata.

P. E.—Appears to be about stated age; patient is anemic with suggestion of nephritic facies. Skin: Nothing of note. Head: No abnormality of development; hair scanty. Face: Slight edema of upper lid; pupils equal and regular, react to C. and D.; extrinsic muscles O. K. Nose: Negative. Mouth: Teeth fair condition; gums negative; mucous membrane not inflamed; tongue protrudes in midline withh tremor. Throat: Tonsils not inflamed or enlarged; mucous membrane not inflamed. Ears: Negative externally. Neck:

Fig. 2.—Case reported, before second operation. Shows pylorus resected, and tumor mass projecting into greater curvature shadow.

few palpable glands; thyroid not palpable. Chest: Fairly well clothed, bulging over precordial region; left chest has slightly greater excursion; right chest has slight amount of lateral bulging. Heart: Not enlarged to right or left; no displacement downward; rate 70, rythm regular; no murmurs; A2 greater than P2; sounds of poor quality. B. P., 120/70.

Fig. 3.—Case reported, before first operation. Gives the roentgen appearance of carcinoma of pylorus. Resected pylorus showed healed ulcer.

Lungs: No rales; no impaired resonance; no dullness; breath sounds clear. Abdomen: Appears somewhat distended; no visible peristalsis or alterations of contour; somewhat tympanitic; no flatness in flanks; kidneys, liver and spleen not palpable; no tenderness or pain on deep or superficial palpation (supraumbilicus midline scar present). Back: Negative. Extremities: Edema of feet and ankles and extending up leg to region of knees. Reflexes: All present and normal; no abnormal reflexes elicited. Genitalia: Negative.

Laboratory Report: RBC, 4,160,000; WBC, 6,400; Hbg, 75% on Oct. 4th, 1921; 55% on Oct. 11th, 1921; Polys, 74%; S. L., 24%; L. L., 2%. Wassermann, negative. Urine, negative. Stool, positive for blood on Oct. 7th and Oct. 16th; patient on meat and fish free

Fig. 4.—Hypertrophic Gastritis. Believed to be the first stage of gastric adenoma and carcinoma.

diet. Ewald Ttest Meal: No free HCl; total acid as follows: First 15 minutes, 16; second 15 minutes, 30; third 15 minutes, 45; fourth 15 minutes, 20; fifth 15 minutes, 20; sixth 15 minutes, 42; seventhh 15 minutes, 65; eighth 15 minutes, 40.

Resume of Patient's Illness at University of California Hospital in January, 1921: Complaint: General weakness, shortness of breath and nausea shortly after meals. Past history same as above. Present illness, typical history of peptic lesion. Diagnosis: Early carcinoma of the antrum with metastasis to the pancreas.

Operative Findings: Pyloric ulcer, glands along lesser curvature. Pylorectomy: Mayo polya operation done.

Pathological Report: Specimen consists of a piece of tissue labeled "stomach," more or

less about 5x4 c. m. One surface is covered by peritoneum with some large vessels which have been tied off. The other surface is covered by mucous membrane. The pylorus cannot be identified. There is a considerable thickening of the muscle at one point and if this is the pylorus, there is, about 2 c. m. above the pyloric opening, a definite depression about 4 m. m. across and 2 m. m. deep. In cutting through this, there is demonstrated a depression which is apparently due to a thinning of the mucous and sub-mucous layers. There is no evidence of a complete destruction of the mucosa as in the full-fledged ulcer. The color of this area seems to be about the color of the rest of the mucosa.

Section shows at the area of depression a thinning of the mucosal and sub-mucosal layers resulting in a considerable shortening of the gland downgrowths and a considerable decrease in the number of these structures. There is, at this point, a mild infiltration with round cells but otherwise no evidence of inflammation. The scetions do not show any break in the epithelial covering. The muscle at this point is somewhat puckered and the layer adjacent to the mucosa is somewhat pitted. This picture suggests very strongly an old healed small ulcer which has resulted in some constriction of the muscle and marked thinning of the mucosa. The thinness of the mucosa and the fact that it is still intact as far as can be detected would indicate that there is a regeneration of this tissue rather than a degeneration. There is no evidence of malignant change.

Diagnosis: Stomach ulcer.

ROENTGEN EXAMINATIONS (October 10, 1921,) No evidence of pathology in the chest. No delay in the esophagus. No cardiospasm The stomach is small and high and the antrum has been resected and united directly to the duodenum (Fig. 2.) Through this opening, the stomach is emptying rapidly. No peristaltic waves are visible. Arising from the middle third of the greater curvature is a lobulated irregular mass. At the site of the attachment, the greater curvature is broken up into small thin lines but is not totally absent as in a case of malignancy.

CONCLUSION: Benign polypoid growth.

OPERATION: (October 22, 1921, by Dr. Harold Brunn.) Operation disclosed a large soft mass within the lumen of the stomach and attached to the greater curvature by a wide base. There was no infiltration of the gastric wall and the surgeon's impression was that this was a non-malignant condition. On account of previous resection of the antrum, it was impossible to resect the base of the tumor, but it was removed by a cautery. A small mesenteric gland was also removed for examination.

The pathological report was as follows:

GROSS: A large irregular mass 5½x5½x4 c. m. and half dozen smaller masses; the large mass is deeply fissured, the surface in aprt finely nodular; projecting from the greater part of the surface are numerous fine delicate finger-like processes, so that the mass as a whole resembles coral; on section the tissue is of spongy consistency, rather soft and friable, without any apparent marked vascularity, made up of small pale brown opaque irregular areas. Included with the specimen is a small firm flattened node 1x1x½ c. m. which on section shows no gross tumor involvement.

MICROSCOPIC: Sections taken from the large nodule and from several of the smaller nodules show a rich papillomatous growth of which the papilae are sometimes long and thin, at other times shorter and thicker. These are covered for the most part by a single layer of columnar epithelial cells with protoplasm taking a medium deep stain and nuclei that tend to be elongated. Some of the epithelial cells contain a single large clear vacuole in the superficial portion of the protoplasm thus resembling goblet cells. In other places the epithelium shows a tendency to pile up into several irregular layers. Mitotic figures are everywhere numerous. In the central portions of the sections are found spaces, usually small, lined by epithelial cells similar to those covering the papillae, the spaces frequently containing degenerating leucocytes, most of them polymorphonuclears. These may represent glandular structures though some may be cross sections of the deeper portions of crypts. The stroma of the papillae is composed of connective tissue frequently areolar and edematous in appearance particularly that in the distal portions of the papillae. Everywhere the stroma is filled with large numbers of leucocytes including plasma cells, lymphocytes and polymorphonuclear leucocytes. The stroma of the central and more solid parts of the growth contains in addition some small bundles of smooth muscle fibres. In the spaces between some of the papillae there are leucocytes and cellular debris and also occasionally a small amount of some faintly staining material resembling mucus. Small quantities of similar material are found in the tumor stroma, particularly in the central portions. Considerable areas of necrosis are present involving chiefly the superficial surface of the growth and associated with marked fibrin formation and polymorphonuclear leococtic infiltration, that exudate frequently extending deeply inward between the papillae. Section through the lymph node included with the specimen shows the sinuses filled with leucoctyes including numerous lymphocytes, neutrophiles, and eosinophiles. There is also a slight diffuse increase in connective tissue, but nowhere is there apparent any tumor involvement.

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PERTHE'S DISEASE*—CLINICAL ASPECTS:—REPORT AND STUDY OF A CASE.

DR. R. J. STROUD, Tempe, Arizona.

Some three years ago your attention was drawn to this condition, especially wth reference to the roentgenological aspects of the disease,[1] and as the case that is presented tonight has recently come under observation, this presentation will be from the clinical side.

Living as we do in the Southwest, where a great many tuberculous patients are being referred each year, it behooves us not to consider all cases of limp with afternoon temperature as Pott's disease. More and more the advantages of Arizona and New Mexico as health centers are becoming known, and frequently cases are referred as tuberculous which prove otherwise. Such was the case with Dr. Watkins' patient of three years ago.. The importance of a diagnosis when a patient presents himself with a limp, pain over the hip joint and referred pain to the knee, is paramount. No case is complete without a radiograph and a Von-Pirquet or complement fixation test for tuberculosis. In fact, the diagnosis between Perthe's Disease and tuberculous hip depends, in the early stages, on the roentgenologist. The prognosis being more favorable in this condition than in either tuberculosis of the hip joint or arthritis deformans, we can do much to relieve the anxiety both of patient and parents as to the final outcome of the case. The most that apparently can happen is a slight limp with slight lengthening or shortening.

NOMENCLATURE: In going over the literature of the subject it seems best to call this condition "Perthe's Disease." When a new name appears before us it is sometimes mystifying that it should bear the name of the scientist who first described the condition.

*Read before the Maricopa County Medical Society, Phoenix, Ariz., in March, 1922.

and this apparently obscures the pathology, but we speak fluently of Addison's disease, the Murphy button, and Poupart's ligament, with the knowledge that we are understood; and now, to my mind, the term Perthe's disease describes the entity of the case here presented. The various names given to the condition are more or less confus-

Fig. 1.—Both hips, showing softening and flattening of the head of right femur, with increased density.

ing. Perthe [2] called the condition "Osteochondritis Deformans Juvenilis." This is as close as any of the other names given, as it tried to describe accurately the pathological condition. This case would certainly come under this head. Legg[3] disputes that the condition is an inflammation and attacks this terminology accordingly; he thinks trauma is the cause, a statement that he goes far to substantiate. He would therefore term the condition "Osteochondral Trophopathy of the Hip-joint." More recently it has been termed by Calve[4], Coxa Plana as differentiated from Coxa Vara and Coxa Valga. This certainly describes the end result. Zaaijer[5] calls the condition Parosteogenetic Juvenile Osteochondropathy. He considers the condition one of defective ossification, and Calve now agrees in this.

ETIOLOGY: So far, three theories have been advanced as to the causative factor. This patient tonight points to one of the three distinctly, namely that of an infection of a low grade. Legg, as stated above, holds to the theory of trauma and cites cases; others he describes as of unknown origin. In this connection I wish to call attention to a parallel case of Legg's which presented the same condition as this one tonight. In his "negative traumatic" cases he scribes one G. D. T-30 as having an abscess in the groin nine months previous, which he thinks (as stated in a footnote), had nothing to do with the condition. The limp appeared in three months and lasted six months previous

Fig. 2.—Showing more detail of the softened, flattened and dense head of femur.

to treatment. This abscess healed without treatment. In our case an infection of the groin is described as being present five months before, with slight limp at the time, which cleared up without treatment. There was redness and tenderness and the limp was ascribed to the infection. Blanchard[6] thinks the disease one of a general nutritional disturbance. He considers that not only the head of the bone, but the

Fig. 3.—Case of Perthe's Disease, reported by Dr. Watkins in 1919, shown for comparison.

whole joint is involved. Frieberg[7] who first described the infectious origin, looks to the tonsils as the chief offender. This case which we present shows enlarged subtonsillar glands, and while, at the first examination, the tonsils appeared normal, on subsequent occasions definite external foci have been noted. Roberts[8] describes the condition as that of congenital syphilis, in spite of negative Wassermann reaction. This case has a negative Wassermann, and also shows none of the stigmata that are associated with obscure syphilis in the presence of negative Wassermann reactions. It is certain that osteochondritis may be a manifestation of syphilis but not necessarily all osteochondritis. Kruter[9] considers the disease a type of arthritis deformans. Pfemister has recently grown organisms from bone taken at operation—not always the same organisms.

PATHOLOGY: The head of the bone is flattened, the neck becomes thickened and shorter, and the ossification centers disappear. The process is sharply defined except that there are some islands of greater density, so characteristic on the radiograph. The whole process is that of an absorbtion tion of paramount importance, especially when considered in the light of considers the disposition of the circula- with no hypertrophic change. Legg trauma, where the circulation is cut off and there is a necrosis following the absorbtion, accounting for the fever. The dense portions as seen in the roentgen plates, which we have here tonight are not strictly osteophytes in the true sense of the word. All of the authors agree now as to this. These areas are probably being absorbed at a slower rate and are due to pressure; i. e., compressed bone. These thickenings all occur at the margins of the bone. The head is mushroomed, and great destruction takes place, which is restored more or less later, when regeneration occurs.

DIAGNOSIS: In spite of Legg's "seventeen points" the diagnosis depends on the roentgenogram. Here the typical mushrooming has taken place something like a glans penis, with bone thickening as an island near the margin, and short, thickened neck. The whole is well defined and has no true mixed density as in tuberculosis. Legg's seventeen points are described as follows, with comparisons of the present case for study:

1 Age—2½ to 12 years. This patient is 5 years and 10 months.
2 Appearance of limp. Without history of trauma in this case.
3 Prominence of great trochanter on affected side. This can be seen and felt in this case.
4 Limitation of motion, most marked in abduction. Here found as described and with some limitation of internal rotation. Flexion is not disturbed.
5 No crepitation, capsular thiskening. Thickening felt in this case.
6 Muscular atrophy of glutei and thigh muscles. In this case right thigh is 12⅝ in; left, 13 in.; right calf, 8½ in.; left, 8⅞ in.
7 Little or no pain except at onset.

	PERTHE'S DISEASE	HIP JOINT DISEASE	ARTHRITIS DEFORMANS
1	Pain referred to knee.	Pain referred to knee.	Pain at joint affected.
2	Impediment of motion.	Impediment of motion.	Limitation of motion marked.
3	Fever mild.	Fever mild.	Fever generally high at first.
4	Change in position of leg.	Change in position of leg.	No clear change unless localized in one joint.
5	2½ to 12 years.	3 to 12 years.	3 to 14 years.
6	Changes in joint structure (one).	Changes in joint structure (one).	Changes in joint structure (many joints).
7	Clears up quickly under rest, without brace.	Does not clear up after rest.	Does not clear up quickly with rest.
8	Child loses no weight.	Weight lost gradually.	Loss of weight rapid.
9	Looks healthy and of normal color.	Looks anemic and phthisic.	Patient anemic but not phthisic.
10	Night cries absent.	Night cries rarely absent and diagnostic .	No night cries.
11	Pain greater at first and gradually lessened with rest.	Pain greater at first and gradually increases.	Pain very intense at first and does not necessarily clear up with rest.
12	generally one side affected.	One side affected.	Both sides affected many other joints.
13	Males chiefly affected.	Evenly divided.	Evenly divided.
14	Glands not enlarged.	Glands enlarged only if tbc. of glands.	Glands enlarged * *.
15	Spleen negative.	Spleen negative.	Spleen enlarged.
16	Roentgenogram shows head of bone flattened and dense bone islands with no atrophic change or thinning of bone.	16—Roentgenogram shows no bone islands but acetabular involvement, atrophic change with thinning of bone.	Roentgenogram shows true osteophytes or excrescences of bone not to be confounded with bone islands. Some differences in density of bone.

Pain was great in this case until rest was given. None since.

8. Little or no spasm. Slight spasm noted here.
9 Trochanter above Nelaton's line. Here ⅝ in. above.
10 Trendelenburg present. Patient waddles somewhat.
11 Legs equal length. Borne out in this case.
12 Von Pirquet negative usually. Complement fixation for tuberculosis negative.
13 Wassermann and family history negative. Same in this case.
14 No evidence of old rickets.
15 Patient's history negative. Here we have an exception in the condition of the tonsils and subtonsillar tissue, also an infected groin on the same side paralleling a case of Legg's.
16 Duration 6 months to a year.
17 Typical roentgen appearance. Plates of this case are very typical.

I would add to this the preponderance in males, except in those cases of operative trauma associated with reduction of congenital dislocation of the hip, which occur almost entirely in females.

The patient is active, healthy, and has not the anemic appearance of either a rachitic or tuberculous child. Legg states that it occurs in very active children, which is well borne out here. The father describes this boy as exceptionally active.

TREATMENT: Frieberg considers removal of the tonsils as a preventive measure and also to allay the process after it has started. Roberfits reports good success with mixed treatment in spite of a negative Wasserman. Exercise, good food, and fresh air are indicated. While waiting for a brace we have merely put this patient to bed, in order to keep the weight from the head of the bone. Some sort of fixation of the hip is required. It is still in question whether it is necessary for a complete fixation as in tuberculosis. Some authors claim that the disease being self-limited, a minimum of fixation is required. A fixation itself is not productive of ankylosis, for many cases mistaken for tuberculosis have been fixed for ankylosis, and afterwards the movements returned, in which case the self-congratulation of the surgeon was in order. All forms of fixation splints have been used, plaster, Thomas splints, side splints, etc., and all seem to be equally efficacious. From my experience in this case it would be impossible to treat without some form of splint, and still keep the weight off the hip. For these patients are lively and healthy ones who will only stay in bed so long. It would seem also that splinting for a bed case is too severe, and that some light appliance with hip fixation, and some lateral traction would be in order, the patient going about on crutches with an elevated shoe on the opposite foot. The length of time necessary for treatment would be about one year, although this should be governed by the roentgenogram and the presence of pus. In this case a side splint is contemplated, and has been ordered.

RESULT OF TREATMENT: In 14 out of 38 cases Legg reports perfect results. In these cases there was no shortening, no limp, and no limitation of motion. Most of the others showed only slight limp and limitation of movement. A few cases showed shortening or lengthening. In all cases recovery is complete, although a warning has been issued by some authors that end results should not be tabulated for some years afterwards. Up to the present time no report can be found of end results for so long a time.

Case W. R. P. Male. Age 5 years 10 months. Mother and father living and well, no tuberculosis or syphilitic manifestations. Two sisters living and well, both younger than the patient.

Past History: Measles at two, chickenpox at three, no whooping cough, no debilitating illness. Always a reckless, active boy.

Present History: Had boils on both knees in September, 1921. Inguinal adenitis late October, 1921, of three weeks duration, with tenderness and slight limp. The limp at the time was attributed to the glandular infection. Tenderness and limp gradually disappeared.

Seven weeks ago he again started limping, this gradually growing worse, and he then complained of pain in right knee.

Patient first seen on January 13th by an osteopath because of pain in knee. He ma-

nipulated hip joint and could find no tender spots. He gave an opinion that hip joint disease was the most probable diagnosis. Patient came to our office on the 1t7h, and was seen by Dr. Alexander. At this time the temperature was 101. There was some pain in the right knee and tenderness on manipulation of the right hip. A tentative diagnosis of tuberculous hip was made, the patient put to bed and sent next day to the laboratory. The laboratory report showed a negative Wassermann, negative tuberculous complement fixation, and the pictures taken which you see tonight. Dr. Watkins diagnosed Perthe's Disease from the roentgenograms. One picture (Fig. 1), shows the pelvis as a whole with the right sided deformity, and the other (Fig. 2), shows in detail the characteristic shortening and thickening of the neck of the femur, a flattened mushroom head, with broad, flat articular surface. The margins of the bone are well defined, and the characteristic bone island is seen on the upper margin. The articular space is larger and broader, and there seems to be no thinning out, as in tuberculosis, of the acetabular socket. This plate does not show any other involvement than that of the femoral head and neck.

Patient seen again January 21st, after rest in bed. He is brighter and more active, and shows general improvement. Temperature, 99.4; pulse, 92; height, 3 ft. 8 in.; weight 45¼ lbs. Tonsils are slightly enlarged. He is not a mouth breather. He eats and sleeps well. A later examination showed the tonsils slightly inflamed with some small ulcerative areas. This followed a period of slightly higher rise in temperature. The temperature curve has varied from normal in the morning to 99.3 at 4 p. m. With but few exceptions there has been always an afternoon rise as high as 99, and when his tonsils became slightly inflamed the temperature was 100 for two nights. The patient has been at rest in bed from January 21st, is restless, and full of life and good spirits. A Phelps lateral traction fixation hip splint has been ordered and the patient will be allowed to go about on crutches when this is applied. Taking Roberts' suggestion the patient has been put on potassium iodid, and a styptic iron swab has been used since the throat has been affected. The patient, as seen tonight, shows a much different picture than when he first presented himself for treatment. The limp was enormous and the disability great. He acted lame and sick. Now the limp has almost disappeared and most of the signs of the spasm and limitation of motion have gone. Just rest in bed has accomplished this. This one fact, without roentgen ray findings, would be sufficient to distinguish the condition from either tuberculosis or arthritis deformans. In comparing the roentgenographs of this boy's hip with that of a tuberculous hip seen today, the disability of this patient should be many times that of the tuberculous one, and yet this boy is agile, shows little limp, while the tuberculous patient is helpless and has to be carried, in spite of being 8½ years old against 5¾ for this boy, and the tuberculous patient has been kept off his hip for two months.

CONCLUSIONS

1. The name Perthe's Disease conveys to me a definite clinical entity, and usage will certainly establish this as the name by which it will be known. To add Calve, Legg and other subsequent investigators' names makes for confusion, and to use names attempting to describe the pathology and etiology will help the confusion. A plea is made to standardize the name.

2. The etiology is still unknown. It seems as if it should soon be cleared up whether it is an infection or not. With the work now being carried on at the Mayo Clinic as to the specificity of bacteria, and their relative localization in various tissues, a culture from either the tonsil or from the head of a femur so affected which should happen to come to open operation, should quiet title as to definite etiology. This case seems to have a bacterial history.

3. All cases of limp, and all cases of referred knee pain should be roentgenographed.

4. The outlook is hopeful, and treatment consists in fixation with traction sufficient to keep weight bearing from the head of the femur.

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RUPTURED TUBAL PREGNANCY — REPORT OF FOUR CASES*

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It is not the purpose of this paper to present anything new on ruptured tubal pregnancy, but rather to rehearse with you its often obscure and indefinite symptomatology, in the hope that more cases may be correctly diagnosed and timely treatment accorded the unfortunate women.

We have reviewed much of the literature published since 1916 and have been invariably struck by the great disproportion existing between the preoperative diagnosis and the operative diagnosis. The four cases which we append serve to emphasize this point. In spite of the fact that medical literature abounds in citations of every conceivable type and complication and in many exhaustive classic studies of these conditions, our diagnostic acumen does not seem to have been materially improved. When we say "our diagnostic acumen" we use the pronoun in its broadest sense, for it includes our biggest and broadest men.

When we consider that only 50 per cent of ectopic pregnancies are correctly diagnosed after rupture (no one has ventured an estimation of the percentage before rupture), we are led to assign two reasons for the errors: first, as a recent writer has stated, "Many of our conceptions in this regard are centuries old and it cannot be considered strange that the ideas of the profession on a subject, the earliest records of which date to an era so far removed as the tenth century, should be pretty well fixed and that the recent advances should be few;" second, because in making a correct diagnosis, the whole gamut of the differential diagnosis of the female abdomen must be rapidly run, frequently in the face of limited opportunity and wholly inadequate surroundings.

FREQUENCY: While no two writers agree as to the frequency of extrauterine pregnancy it is very evident that, whereas it was formerly considered a pathological curiosity, it has become a condition of every day occurrence, the tubal type making up 86.7 per cent of the total number.

ETIOLOGY: Very little advance has been made in determining the etiology of these conditions, but we venture the prediction that the laboratory, working with the surgeon, will come to our aid in helping to classify the causes. At the present time, it is agreed that the condition is due to some pathology which impedes and finally obstructs the progress of the impregnated ovum to its normal resting place. Theoretically, this may be due to conditions producing changes in the lumen of the tubes or their epithelium such as the result of inflammatory conditions, neoplastic growth and infantile tubes, or to the changes in the ovum itself, its volume being so increased as to render its passage through the oviduct impossible. This latter view is championed by La-Torre who states that syphilis, tuberculosis and gonorrhoea are responsible for these changes, by altering the structure of the ovum, creating a veritable ovarian hydropsy. That ectopic gestation is the result of modern civilization, as this author contends, is to be doubted, since, for example, one of the cases we report was in a full blooded Pima Indian, removed from primitive life by her own generation only, and from the further fact that ectopic gestation is said to be not uncommon in the lower animals as the ape, cow, sheep, bitch and hare.

SYMPTOMS: Practically all observers place pain as the most constant symptom. (In Graham's series of 100 cases, only one stated there was no pain.) The pain is variously described as "bearing down, grinding, tearing, sickening and sore pain." The pain is usually complained of in the pelvis to the right or left as the case may be, but has been located as high as the epigastrium and as low as the rectum. We interpret Mussies' observation on pain in the rectum in these cases to mean that when

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the symptom complex points to ectopic pregnancy, the symptom of pain in the rectum, or painful defecation, if not due to rectal disease, seems pathognomonic.

Before leaving the subject of pain, we desire to call your attention to the observations of H. F. Lewis, based on his study of 168 cases. He found sudden abdominal pain in less than 50 per cent, colicky pain in the lower abdomen in a little more than one-third of the cases, but abdominal tenderness in 80 per cent, adding that the more severe the symptoms the more accurate the diagnosis. Graham's idea is that when a patient describes the pain that is present in ectopic gestation, we must have in mind many morbid pelvic conditions, i. e., appendicitis, perforation of the intestines, lesions of the stomach and gall bladder, but if, in addition to pain, she speaks of delayed menstruation followed by irregular flow, the first thought that comes to mind should be ectopic gestation. Heaney says, "that to emphasize the severity of the pain as the significant feature is like dwelling upon the emaciation in cancer of the uterus. To await it, in otherwise clear cases, is to court disaster. The condition of any woman of obstetrical age who is seized by abdominal pain of severity, followed by shock and syncope, even if transient, must be regarded as possibly due to ectopic pregnancy, until proven otherwise."

The second most constant symptom occurring in over 90 per cent of cases, according to Heineberg, is hemorrhage from the uterus. This symptom, together with other menstrual disturbance, is considered more distinctive than pain, although less constant. We find it impossible to reconcile the observations of various writers concerning the character of the flow. It is, however, easier to reconcile the statements as to amount, since the majority find it scant rather than abundant and intermittently prolonged. We are impressed with Heaney's thought that "every patient presenting herself with the suspicious symptoms of a threatened, imminent or incomplete abortion, should be examined with the possibility in mind that the condition may be ectopic pregnancy, more especially if the cramps are located in the side of the pelvis instead of over the uterus."

In considering the symptoms of ruptured tubal pregnancy we quote freely from Heineberg who classifies ruptures into *tragic* and *non-tragic* types. Under *tragic* terminations of rupture the classic symptoms are sudden, severe, cutting pains, usually in the iliac region on the side of the pregnancy. Frequently fainting, followed by symptoms of concealed hemorrhage, such as pallor, restlessness, thirst, air hunger, increasing weakness, faintness, dark spots before the eyes, increasing pulse rate and decreasing arterial tension. Pulse rate may not increase for two or three hours after rupture. Abdominal tenderness and rigidity soon appear and may extend further than the lower part of the abdomen.

In the *non-tragic* type the above symptoms are modified as to severity. The cases are more insidious in onset with slow bleeding. Here the most significant symptom is the hemorrhage which is continuous from the onset. The blood is not profuse as a rule and is darker than menstrual, slimy, and frequently contains shreds of decidual membrane. Pain is of varied character but constant as to location and tendency to recurrence. It is always more severe during defecation and urination.

PHYSICAL SIGNS: Uterine enlargement is found in one-third of the cases. There is a palpable mass usually in one of the fornices in two-thirds of the cases; the vaginal mucous membrane shows turgescence, the cervix is soft, the os patulous, while the uterus usually shows some enlargement. Heaney notes that it may show no appreciable increase in size, and may be smaller than normal. There is usually found a mass, often extending from side to side, sometimes filling the culdesac of Douglas, sometimes attached to the uterus, while in others the uterus moves independent of the mass; all these are difficult to determine, and often impossible on account of tenderness. Tenderness is a very valuable

sign, even though it may mask other physical signs, as Proust states, "after rupture of a pregnant tube it may be impossible to palpate any accumulation of blood in the pouch of Douglas, but deep palpation will often elicit sharp, sudden pain, so severe that when the patient is half swooning, the pain makes her cry out."

DIAGNOSIS: A careful history of the case, studied in perspective, together with a careful bimanual examination, under an anesthetic, if necessary, should materially reduce the number of mistaken diagnoses. Even the cases of incomplete abortion, with all the evidence at hand of a correct diagnosis, should be examined bimanually for it is quite possible to have a co-existing extra-uterine pregnancy, but more particularly should this examination be made when only decidua is found for decidua may be only a camouflage of a tubal pregnancy.

TREATMENT: The safe and sane procedure is to operate as soon as a diagnosis is made. This applies to the tragic type as well as to the non-tragic. In the tragic type stimulation is contra-indicated, but anodynes, salt solution, and possibly a resort to autogenous transfusion, i. e., using the flood found in the patient's abdomen, as reported by Licktenstein, are indicated.

Case 1—Mrs. R. K. A., white; age 32; nullipara. Had measles, whooping cough and mumps as a child. Later, had fainting attacks, would always be very sick afterward with bilious attacks.

Began to menstruate at age of 14. Twenty-eight day type and painful. History of backache, but no leukorrhea. In 1912 was in a tuberculosis sanatorium for incipient tuberculosis.

Patient had no previous pregnancies and had missed no previous periods. Missed her December period; about January 11, 1920, began to flow. A few days before this, however, she had some severe obstruction for which physician was consulted. She had severe griping pains, very little gas distention, and no fever. Bowels moved with elaterium and colonic flushings. Patient felt better after bowels moved. Next day she had severe pains in lower abdomen and she began to flow. Pain was "bearing down" in character. Her physician called, found a foul mucopurulent bloody vaginal discharge; temperature 102½. Examination revealed a mass just above cervix. Cervix slightly dilated. Diagnosis "incomplete abortion." Curretted January 16, 1920, and got about a "handful of degenerated decidua." Improved after curettage, and temperature came down to normal. The night following the fourth day after currettment (January 21), she developed a sudden severe pain in the right side and collapsed, cold, clammy sweat, and very feeble pulse, too rapid to count. Vaginal examination by her physician revealed uterus low down and fixed on right side. Diagnosis—"ruptured pyosalpinx." Brought by automobile sixty miles over mountain to hospital at Prescott, arriving about 10:20 p. m., January 24, 1920. Patient vomited dark green fluid nine times during the first four hours at hospital. Appearance was that of patient in advanced peritonitis with intestinal obstruction. Three days were spent in getting patient in condition for operation, and much to our surprise, she stood the ordeal well. Operative findings 'ruptured tubal pregnancy, right side; left pyosalpinx, acutely inflamed appendix and plastic peritonitis with agglutination of two knuckles of small intestines, giving partial intestinal obstruction."

Patient made a slow recovery, but has enjoyed good health since. It is to be regretted that the blood findings were not made in this case, as the hemoglobin and cell count would certainly have borne out the clinical appearance of an extreme infection—all but terminal.

Case 2—Mrs. J. H. S.; white; age 29; born in Germany; third child in family of ten.

Diseases of childhood, scarlet fever and measles; no diseases other than these. First menstruation at age of fifteen, twenty-eight day type, duration about one week, flow moderate in quantity and practically painless, always regular, no leukorrhea.

Married at age of twenty-seven. Had some dysmenorrhea after marriage, but period always regular, except once when she went "over" two weeks. Last menstruation, December 25, 1919, or two years and four months after her marriage.

Until about middle of February only symptom of pregnancy noted was increase in the size of breasts. No morning sickness.

About the last of February, she noted a gradually increasing soreness in the right lower abdomen, concerning which she consulted her neighbors, who assured her that in pregnancy "they all had that and more, too."

On March 7, while walking home from church on slippery sidewalk, slipped slightly and felt something "give way" in right abdomen, no sharp pain but soreness increased, and she got home with difficulty. Next morning, having inclination to stool, went into the toilet, bowels did not move, but instead a very severe colic-like pain struck her in the lower abdomen, right side. She felt faint, was in cold perspiration, and got to her bed with much effort. There was no flow at this time. She called her physician, who diagnosed "appendicitis," but as she was pregnant, did not want an operation at this time.

Four days later she began to flow and on the fifth day, Friday, she had very severe

colic-like pains and "passed something from the womb." One of us (Yount), was hurriedly called on the morning of the seventh day after pain began, or third day of flow. Patient in great pain, very anxious expression, very restless, and on going to the toilet, in preparation for examination, became very weak in toilet and required to be carried to bed. Restorative administered. Too tender for satisfactory examination, but a piece of decidual tissue was removed from the vagina, and a diagnosis of ":incomplete abortion" made, and patient sent to hospital for operation.

At operation, only small piece of decidua removed from uterus. A careful bimanual examination was not made at the time. (Note: This opportunity for thorough diagnosis will not be omitted again.) The uterus was packed with gauze. The next morning about 4 o'clock, patient had severe pain in right side, sweating and weakness. Nurse told her it was due to gauze pack in uterus. Gauze packing removed. Patient made uneventful convalescence, discharged from hospital on seventh day after admission. Temperature and pulse normal, very scant flow. On morning of March 16, second day after her return from the hospital, or two weeks after first abdominal pain, patient was seized with sharp, cutting pain in lower abdomen, right side. There was muscular rigidity, and tenderness on pressure in the lower right quadrant. Re-admitted to hospital. Temperature 99 degrees, pulse 96, with preoperation diagnosis of "acute appendicitis." Operation disclosed about one pint of clotted blood (mostly old), in abdominal cavity, with ruptured ectopic (tubal) pregnancy right side, and an acutely inflamed appendix. Right tube and appendix removed. Rubber tube drainage. Somewhat slow convalsecence due to infection; otherwise good recovery, and excellent health since.

Case 3—Alice N.; age 33; occupation, servant; race, full-blooded Pima Indian. History of antecedents not known.

Patient was married. Had been confined eighteen months before, giving birth to twins, both living. Parturition and post partum period normal. Patient gave no history of previous illness, such as pelvic infections. She had missed one period. October 20, 1920, at about 11:30 a. m., patient went to the toilet, and while there had severe pain in abdomen, causing her to faint. She was assisted to a bed and restoratives administered. About an hour later she started vomiting, still complaining of feeling faint. First saw the patient about 3:00 p. m. Found her to be markedly obese, weighing about 190 pounds. She was in profound shock, very restless, cold, clammy skin, sighing respiration, feeble, rapid pulse, pupils dilated, abdomen tense, tender, showing spasm. Diagnosis of "ruptured tubal pregnancy" with grave prognosis was given husband. Consent was obtained to remove her to the hospital for operation. As soon as she reached the hospital, hypodermoclysis was started and preparations for immediate operation were made. A short time later, as she was being wheeled into the operating room, she died.

POST MORTEM FINDINGS: Upon opening the abdomen, great quantities of clotted blood and bloody serum were found. The uterus and adnexa were brought into view, showing them to be free from adhesions. There was a left tubal pregnancy at the isthmus, ruptured. Section of the uterus and ruptured tube was made, which showed about an ounce of decidual tissue protruding from the tube into the uterine cavity.

Case 4— Mrs. Z. B. C.; white; age 20; married seventeen months. Usual diseases of childhood. Had typhoid fever five years ago; severe attack of "flu" in 1918.

Began to menstruate at age of fifteen. Twenty-eight day type, duration six or seven days, considerable dysmenorrhea but not constant, no leukorrhea. Dysmenorrhea no more noticeable after marriage than before.

Husband gives history of Neisserian infection three and one-half years before marriage, but repeated microscopic examinations before marriage were negative.

Patient was never pregnant, had missed no periods. March 23, 1921, flow began two days earlier than usual and continued until April 6, when she consulted one of us (Yount).

Examination showed dark, bloody vaginal discharge, not profuse, nor clotted, uterus not enlarged, cervix small, hard, and no dilatation of canal. Uterus retroverted, and right tube slightly enlarged and tube and ovary prolapsed. Patient placed on calcium chloride, ordered to bed, and requested to report in two days, if no improvement. April 9, or 19 days after flow began, no improvement, but a little soreness in lower abdomen. Gentle vaginal examination revealed conditions as at first examination, except that distended, prolapsed right tube was distinctly tender. Removed to hospital, temperature 99, pulse 80. After cleaning out lower bowel, another bimanual examination (third), was made. Nothing new discerned. Uterus was distinctly retroverted and seemed "fixed" and right tube was so tender that patient cried with pain during examination (Douglas sign), which was very carefully and gently made. April 11, patient seen in consultation and examined by joint author of this paper, who confirmed diagnosis. Neither of us considered the tubal condition ectopic gestation.

OPERATION AND OPERATIVE FINDINGS: Dilation and currettage. Uterus 2¾ in. in depth, no decidual tissue found. Laparotomy—as soon as the peritoneum was opened, stale disintegrated, brownish-red blood welled into the wound. Uterus and right tube brought up. Tube found distended with blood clot and decidua protruding through rupture. Rupture 1x1½ c. m. in diameter, about inner third of tube. Tube was slightly tortuous with two spiral twists. It was 7½ c. m. long and the distended spirals 2 c. m. wide. About three ounces of blood in the peritoneal cavity. Right tube and part of ovary removed. Appendix found acutely inflamed, indeed we seldom see more angry appendices in acute conditions. Appendix removed; rubber tube drainage.

THE POSSIBILITIES OF EARLY DIAGNOSIS OF THE TUBERCULOUS KIDNEY

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In the discussion of a paper entitled "The Early Diagnosis of Renal Tuberculosis," read by one of us before this society in March, 1919, the following interesting points were brought out:

The subject is of special interest to us, as we see more than many other communities, due to its association with pulmonary tuberculosis.

That nephrectomy is a life-saving measure, if performed while the disease is unilateral, even when vesical tuberculosis complicates.

That following the appearance of tuberculosis in a kidney, the course is invariably progressive and the period of freedom from infection of the other kidney, while variable, may sometimes be measured in months.

That frequency of urination, especially at night, is perhaps the most constant and characteristic early symptom and in an individual too young for a senile hypertrophy of the prostate should certainly suggest renal tuberculosis.

That pus found in the urine, especially where other bacteria are not demonstrable and especially in an acid urine, should occasion repeated examinations, if necessary, for the tubercle bacillus.

That the best evidence of all, of course, is to find pus and tubercle bacilli in urine from a catheterized ureter.

We may well pause to consider just what constitutes an early diagnosis. Certainly not the complete caseation of the kidney, pelvis and ureter or the pyelonephrotic sac of pus usually seen at operation. Nor can it be called early when the disease is bilateral, or when there is also involvement of the prostate, epididymes or seminal vesicles. Surgical renal tuberculosis begins and develops, according to Edward Keyes, Jr., as a characteristically localized and unilateral disease. Halle and Motz, in a series of 131 post-mortems, found 89 cases of unilateral renal tuberculosis. The first lesion of chronic renal tuberculosis usually appears near the base of one of the papillae at the upper or lower pole of the kidney; the central portion of the parenchyma is singularly exempt from involvement (Keyes). It is on this presumption that we believe that the method we are now using will demonstrate renal tuberculosis earlier than will any other method. The presumption of renal tuberculosis, based on symptoms alone, does not justify nephrectomy and an exploratory operation will not reveal the condition unless the surface of the organ is studded with tubercles, so that a positive diagnosis necessarily depends on finding both pus and tubercle bacilli in urine from a catheterized kidney pelvis.

The process begins in the kidney from a hematogenous implantation of bacilli from a focus elsewhere in the body. The x-ray will usually show evidence of past or present involvement of the lungs in spite of a negative history. The so-called "arrested" case of lung tuberculosis that develops a pyuria should be examined assiduously. Tuberculosis of the bones and joints are uncommon as original foci of kidney tuberculosis. Quoting further from Keyes we find that, "this first lesion is a characteristic tubercle, crowded with tubercle bacilli. The lesion itself enlarges by extension of round-cell infiltration which ultimately breaks down to form a cheesy nodule or cyst; or if it reaches the kidney pelvis a tuberculous ulcer."

Taking into consideration the size and shape of the normal cavity of the kidney, which consists of the minor and major calyces, and the kidney pelvis, and the fact that renal tuberculosis usually appears near the base of one of the papillae at the upper or lower pole of the kidney (the central portion of the parenchyma being remarkably free from involvement early in the course of

the disease, as mentioned above), we can readily see why this first lesion which is "a characteristic tubercle, crowded with tubercle bacilli" is most likely to involve, or soon communicate with, the kidney cavity, thereby affording the opportunity of finding pus and bacilli in the urine from the affected side; this is the *sine qua non* for nephrectomy.

The degree of tuberculous involvement as indicated by the amount of pus in the urine, is relatively small in lesions of the kidney, compared with tuberculous lesions elsewhere. Consequently, there may be quite a lot of pus, with so few bacilli that repeated slide examinations of stained centrifuged specimens will prove negative in early cases. Except in cases of very extensive ulceration, it is practically a waste of time to look for the bacilli by this method. Recognizing this, we have lately employed the antiformin method as used in the concentration and detection of tubercle bacilli in sputum, with some necessary modifications, in the diagnosis of early renal tuberculosis, with very satisfactory results, as illustrated by the following, which is one of three cases which have proven positive at the first examination.

Case 1. Male, age 51. Eight years ago had bacilli in sputum and came West for his pulmonary tuberculosis. Apparently arrested for past six years, during which time he has had no fever, loos of weight or cough, and was seemingly as well as ever. About eight weeks ago began to get up about twice each night to void. Four weeks ago noticed a slight burning on urination and his physician found pus in the urine. Has had no blood in the urine and no pain. Catheterized specimen from bladder showed an acid urine, a moderate amount of pus, positive albumen, and an antiformin concentration showed a few clumps of tubercle bacilli. Cystoscopy revealed nothing abnormal in the bladder except a localized inflammation of moderate degree around the right ureteral orifice. Catheterized specimens were obtained from each kidney pelvis; the left proving normal except for a slight trace of albumen; the right showing albumen, pus and clumps of tubercle bacilli with the antiformin concentration. Phenolphthalein appeared in three minutes from each side and each kidney eliminated 10 per cent in ten minutes. At operation, there was no evidence of peri-nephritic inflammation, either past or present, no enlargement of the kidney or tubercles visible on the surface, no pebbling or sclerosis of the ureter and we appeared to be removing a normal kidney. On sectioning the kidney after nephrectomy, we found a tuberculous cavity, the size of a small pea, communicating with the lower portion of the upper major calyx, a few millet-sized tubercles on a papilla in the lower pole and a few suspicious nodules grouped around a lower minor calyx. The rest of the organ was macroscopically negative.

We do not recall havng seen a tuberculous kidney come to operation with as little destruction as this one.

The antiformin method is a procedure for detecting tubercle bacilli in any suspected material where the organisms are few in number. It is based on the fact that the tubercle bacillus will withstand chemical action sufficiently active to destroy mucus, pus and other bacteria, without itself being destroyed or even losing its staining characteristics. Antiformin consists of two solutions, "A" and "B". Solution "A" is a ten per cent solution of sodium hypochlorite and solution "B" is a fifteen per cent solution of sodium hydroxide. As ordinarily employed with sputum, twenty c. c of sputum are diluted to sixty-five c. c. with sterile distilled water and 15 c. c. of antiformin (equal parts of "A" and "B"), added. Working with these dilutions as a basis, it is readily applicable to urine sediment. Even in very early tuberculosis of the kidney, there is usually an abundance of pus, though the organisms may be scanty. In such a case, the urine may be saved for several hours and allowed to stand until the pus settles to the bottom of a cone-shaped container and the supernatant urine poured off, or it may be centrifuged, a tube full at a time, each time saving the sediment and pouring off the supernatant urine, until all the pus is collected. It has been found that 15 c. c. of antiformin, diluted with 90 c. c. of sterile distilled water, will destroy this sort of pus, together with the small amount of mucus usually present, in one hour at incubator temperature. The sediment is then collected by centrifuging, washed several times with normal salt solution, spread on a slide and stained in the usual manner for tu-

bercle bacilli. The only precaution necessary is to have the antiformin of such a strength that the tubercle bacilli will not also be destroyed.

We believe that the antiformin method is a valuable procedure in this connection and one not generally applied. On looking over available literature, reference is made to slide examinations of urine sediments for tubercle bacilli but no mention is made of the concentration method. Slide examinations are spoken of as extremely valuable when the organism can be found, but are passed up with such a statement as the proverbial saying, "it is like looking for a needle in a haystack." There are possibly two reasons why this method is not more widely used: one is the inconvenience experienced in the preparation of antiformin and its instability, and the other is a prevailing feeling of uncertainty on the part of the examiner, when acid-fast bacilli are found in urinary sediments, as to whether they are tubercle bacilli or smegma bacilli, the latter being saprophytic organisms commonly found on the external genitalia and are also acid-fast.

Sodium hypochlorite is an unstable compound and decomposes in a few weeks, even in amber colored, glass-stoppered bottles. Difficulty is experienced when it is prepared from chlorinated lime, as a source of chlorine, because that substance is also more or less unstable. The most satisfactory source of chlorine is from drums of the liquid. From this the gas is measured through a gasometer, and delivered into a sodium carbonate solution in such quantity as to yield a sodium hypochlorite solution of required strength. It can be prepared fresh at any time and with little trouble, by this method.

Confusion of B. tuberculosis and B. smegmae can be avoided by a careful collection of the specimen. B. smegmae is non-pathogenic and is never found inside the urethra. If the patient is a man, it is unnecessary even to catheterize when searching bladder urine. The penis and especially the glans, should be washed with green soap and finally rinsed with a weak bichloride solution before urinating. The first few c. c. of urine to pass should be discarded and the rest collected in a sterile container. Any organisms found in this specimen can be safely regarded as coming from the bladder. If the patient is a woman, further precaution is necessary. The vulva should be carefully washed with green soap and finally rinsed with boric acid solution. Preferably a glass catheter should then be introduced, being careful to touch nothing but the external orifice of the urethra. Specimens secured from catheterized ureters can be safely regarded as free from the smegma bacillus. If these precautions have been properly observed, no differentiation is necessary, but in the event they have not, a differentiation may still be made by decolorizing the stained smear for one hour in acid-alcohol. B. smegma will be decolorized while the bacillus of tuberculosis will retain the stain. It is said that B. smegma will sometimes withstand this test, but when it does so, it is stained so faintly as to be easily differentiated.

In three out of four cases recently examined by this method, tubercle bacilli have been demonstrated at the first examination. Failing to demonstrate the organism by this means, a guinea-pig, or better, several guinea-pigs, may be inoculated. But by animal inoculation, at least three weeks is required to make a diagnosis. This causes unnecessary delay in many cases in which the time is valuable. If the organism is not demonstrated by one examination, several can be made and, if present, will be found.

We realize that in cases of occluded renal tuberculosis and in isolated tuberculous foci in the parenchyma, this method will not demonstrate bacilli for the reason that they are not procurable from a catheterized ureter. However, these are the rarer forms of the disease; the great majority of cases of tuberculous kidney have both pus and tubercle bacilli in the urine very early, frequently before any symptoms, other than a frequency of urination.

CONCLUSIONS.

1. We see a relatively larger number of tuberculous kidneys than do other communities.

2. It is of extreme importance, from a surgical standpoint, to make the diagnosis early in the course of the disease.

3. The antiformin concentration method is a distinct improvement over methods commonly used for the early detection of the tubercle bacillus in urine.

4. The majority of cases of renal tuberculosis involve or soon communicate with the kidney pelvis, making a diagnosis possible, early in the course of the disease.

5. Every case of pyuria, especially with a history of active or arrested pulmonary tuberculosis, should be considered a possible case of renal tuberculosis, until proved otherwise.

BLOOD CHEMISTRY WITH A REPORT OF FIFTY EXAMINATIONS.*

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Blood Chemistry, or the chemical examination of blood, is thought by far too many to belong only to the research laboratory, where experimental physiological chemistry is done by research workers, and until Folin brought out his epoch-making work placing blood chemistry on a practical working basis, blood chemistry was not available for the physician in making a diagnosis.

Since Folin published his work, blood chemistry is or should be available to anyone desiring to use the chemical contents of the blood as aids in diagnosis.

At present a blood chemical analysis is no more difficult than urinalysis, gastric content analysis or blood counting. A careful technician who is good at matching colors can, in a few days, do good work by following the outlined technic carefully.

The quantity of blood required has been brought down to a small amount; ten cubic centimeters is ample, and if necessary the estimations can be done with five cubic centimeters of blood, or even less if it is absolutely necessary. This makes it easy since few patients will object to giving this amount of blood.

Other workers besides Folin have done much to improve and simplify the technic, viz: Denis, Myers, Fine, Benedict, Lewis and many more far too numerous to mention, as a review of the literature would take far too long.

For clinical purposes the blood is examined for non-protein nitrogen, urea nitrogen, creatinine, creatin plus creatinine, blood sugar and uric acid. In many conditions such as impaired kidney function, diabetes, arthritis and gout, chemical examination of the blood is very helpful in diagnosis and prognosis. I believe it is more helpful than any of the other laboratory examinations.

In one hundred cubic centimeters of whole blood of a normal healthy person, there is an average of 25 to 35 milligrams of non-protein nitrogen, 12 to 15 milligrams of urea nitrogen, 1 to 2 milligrams of creatinine, 6 milligrams of creatin plus creatinine, 80 to 120 milligrams of blood sugar and 2 to 3 milligrams of uric acid.

I have been asked a great number of times if a careful urinalysis does not give as much information as a

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chemical examination of the blood. My answer is, "it does not." Both are of great value, but blood chemical examinations are of very much more value than urinalysis as I will point out in some of my cases.

Many diabetics who have large amounts of sugar in their urine have a lower blood sugar content than cases with no glycosuria, but having a hyperglycemia, showing that glycosuria depends on the permeability of the kidney to sugar. A striking demonstration of this is shown by the injection of phlorizin (one gram per kilo of body weight) producing "phlorizin diabetes," the urine containing as high as ten per cent sugar with no increase in blood sugar content.

When there is a faulty elimination of the nitrogenous waste matters, uric acid is always the first to be retained in the blood, non-protein and urea nitrogen next and creatinine last.

An increase of uric acid which remains constant is always found in patients with gout, while in other joint conditions an increase may or may not be found. In arthritis there is an increase of the other non-protein nitrogenous elements of blood as well as an increase of blood sugar, although the increase of uric acid is inconstant.

In nephritis there is an increase of non-protein and urea nitrogen, uric acid and creatinine. Creatinine is the most important of these in prognosis as a marked increase to one hundred per cent or more is considered by many to indicate a fatal termination in a short time. The other nitrogenous elements may be increased to a much higher percentage than creatinine without so grave an outlook for the patient.

For my report I have taken the first fifty examinations done in my laboratory in rotation from January 1, 1921. These were examinations of the blood of forty-three patients, two having three examinations and three having two examinations. Of these persons thirty-five were females, fifteen were males. The youngest patient examined was twenty-three years of age, the oldest was seventy-six years, the average being slightly over forty-nine years. The conditions diagnosed were as follows:

Myocarditis, six cases; myocarditis complicated with nephritis, four cases. Nephritis, seven cases; nephritis complicated with myocarditis, four cases; nephritis complicated with arthritis, four cases; nephritis complicated with angina pectoris, one case. Arthritis, ten cases; arthritis complicated with nephritis, four cases; arthritis complicated with colitis, one case. Colitis, five cases; colitis complicated with arthritis, one case. Undernourished, five cases. Auricular Fibrillation, one case. Hyper-thyroidism, one case. Diabetes, two cases. Toxic Encephalitis, two cases.

In these fifty examinations the quantity of each element per one hundred cubic centimeters of whole blood was as follows:

	Highest	Lowest	Average
Non-protein Nitrogen	98.40	7.5	31.40
Urea Nitrogen	81.00	4.8	19.66
Creatinine	6.00	0.5	1.98
Creatin plus Creatinine	13.20	3.6	7.18
Blood Sugar	400.0	23.0	122.10
Uric Acid	11.12	1.1	4.42

The six cases of Myocarditis showed:

	Non-Protein Nitrogen	Urea Nitrogen	Creatinine	Creatin plus Creatinine	Blood Sugar	Uric Acid
Highest	39.0	19.95	3.0	10.6	133.0	3.3
Lowest	15.21	7.05	1.2	5.0	102.0	2.0
Average	27.8	14.5	2.1	7.5	110.7	2.6

In these cases of myocarditis the average of non-protein nitrogen, urea nitrogen, creatinine and uric acid are within normal limits while creatin plus creatinine is high. This average was brought up by two cases, numbers 20 and 49, both of which had over ten milligrams of creatin plus creatinine. They are probably nephritics, but show no albumen or casts so were not classed as such in my diagnosis.

The sixteen cases of Nephritis showed:

	Non-Protein Nitrogen	Urea Nitrogen	Creatinine	Creatin plus Creatinine	Blood Sugar	Uric Acid
Highest	98.4	81.0	6.0	12.3	400.0	11.0
Lowest	17.1	4.8	.5	4.0	23.0	1.3
Average	36.3	22.9	1.1	6.7	129.1	4.8

In these cases of nephritis there is a wide variation in the blood findings. This shows that where the kidneys are involved there is a wider variation of the blood findings than in any other condition in this series.

The five cases of Undernourishment showed:

	Non-Protein Nitrogen	Urea Nitrogen	Creatinine	Creatin plus Creatinine	Blood Sugar	Uric Acid
Highest	30.9	18.0	3.0	8.3	117.0	8.25
Lowest	20.0	12.0	.8	4.8	50.0	1.1
Average	26.1	11.6	1.7	6.0	79.6	3.6

In these five cases all of the blood findings are low except creatin plus creatinine and uric acid. The high creatin plus creatinine is probably due in these cases to the fact that the body muscles are being depleted in keeping with the amount of these constituents in the blood.

The fifteen cases of Arthritis showed:

	Non-Protein Nitrogen	Urea Nitrogen	Creatinine	Creatin plus Creatinine	Blood Sugar	Uric Acid
Highest	81.0	81.0	5.0	12.3	200.0	9.0
Lowest	7.5	9.9	.8	3.6	97.0	2.0
Average	33.1	25.1	2.1	7.6	129.3	5.4

These fifteen cases of arthritis show a wide variation in all the blood findings and an increase in all except non-protein nitrogen, the urea nitrogen and uric acid being increased proportionately more than the other blood findings.

The two cases of Diabetes showed:

	Protein Nitrogen Non-	Urea Nitrogen	Creatinine	Creatin plus Creatinine	Blood Sugar	Uric Acid
Highest	57.0	36.0	2.6	11.2	360.0	11.1
Lowest	20.1	28.0	1.6	5.9	300.0	4.3
Average	38.6	32.0	2.1	8.6	330.0	7.7

These cases show an increase in all the blood findings except creatinine.

The six cases of Colitis showed:

	Non-Protein Nitrogen	Urea Nitrogen	Creatinine	Creatin plus Creatinine	Blood Sugar	Uric Acid
Highest	36.0	19.5	2.4	9.6	170.0	8.0
Lowest	18.0	9.9	.8	4.1	87.0	2.5
Average	28.5	14.1	1.6	6.5	110.3	4.6

In the cases of colitis the average of the blood findings are within normal except uric acid, which is about fifty per cent increased.

Case 1. Case number 28 of the series, Miss C., thirty-two years of age, came under my care in May, 1919. She was single, without occupation. She was born prematurely at seven months, and weighed three pounds. She was frail and under normal until six years of age, when she began to build up and developed into a normal healthy person. She had concussion of the brain at seven years of age from an accident, but no other illnesses. Menstrual periods began at twelve years of age, and were normal with the exception of being occasionally scanty. She underwent appendectomy in April, 1916, with good recovery.

The complaint for which she consulted me was attacks of dizziness, poor sleep and discomfort across lower abdomen.

The physical examination was negative except for tenderness in the cecal region and over the sigmoid. Heart sounds were clear, only about one-half the normal quality. The pulse rate was eighty per minute. The blood pressure was, diastolic thirty, systolic eighty-five.

Urine examination was negative. Feces examination showed mucus and much undigested food.

Diagnosis: Mucous Colitis.

On a proper diet she improved, although, as in most cases of this kind, she would eat indiscreetly when she was free from pain, and bring on another attack. This condition has continued for the two years I have been looking after her.

In June, 1921, she began to have severe pains in the back of her neck and left

shoulder which were so severe that she felt compelled to move her head and shoulder nearly all the time in the attempt to relieve the discomfort. A chemical examination of her blood showed: Non-protein nitrogen, 25.2; urea nitrogen, 9.9; creatinine, 0.75; creatin plus creatinine, 5.1; blood sugar, 170.0; and uric acid, 3.85 milligrams per one hundred cubic centimeters of blood.

From these findings I was satisfied that her condition came from focal infection. Unable to find any infection elsewhere, I insisted on an x-ray of her teeth being taken (even though she had recently had her teeth looked over and a partial lower denture made), with the result that there was found a small fragment of the posterior root of the right lower second molar with an abscess cavity around it. On careful examination of her gums, I found a small sinus leading to the pus sac. I had the offending piece of tooth removed and a month later the pain began to lessen and entirely disappeared in three months. Since that time there has been no recurrence.

Case II. Examinations numbers 2, 4 and 9 are of one patient, Mrs. S., age seventy-one, married. I saw her in consultation January 17, 1921. She complained of severe headaches, inability to take food, severe pains in the region of her heart and inability to move in bed without bringing on a heart attack, as she called it.

The physical examination showed her to be very much emaciated, with dry and harsh skin, a tongue coated and very dry and the odor of apples on her breath. Lung examination was negative. The heart sounds were clear and loud. The pulse was 200 per minute. On so slight an exertion as turning over in bed the pulse would become too rapid to count. The blood pressure was, diastolic 130, systolic 200. On account of the gravity of the situation, I sent her to the hospital.

The chemical examination of the blood of January 18, 1921, showed: Non-protein nitrogen, 7.5; urea nitrogen, 4.8; creatinine, 6.0; creatin plus creatinine, 9.6; blood sugar, 24.0; uric acid, 5.75 milligrams per one hundred cubic centimeters of blood. From the above findings and the fact that several authors claim that a creatinine content of 5.0 milligrams is indicative of an early fatal outcome, I decided to use heroic treatment in an attempt to increase the elimination.

She was given sixteen ounces of buttermilk with the addition of sugar or corn syrup, every three hours, water as much as she could take, Murphy drip constantly, hot packs twice a day and enough magnesium sulphate to produce free catharsis.

Urine examination on admission showed: Amount in 24 hours, 900 c. c.; specific gravity, 1013; albumen, trace; no sugar; no casts; an occasional red blood cell. Daily output of urine from January 19 to February 8, 1921, was as follows: January 19, 900 c. c.; 20th, 720 c. c.; 21st, 1080 c. c.; 22d, 1770 c. c.; 23d, 1920 c. c.; 24th, 2550 c. c.; 25th, 2070 c. c.; 26th, 1350 c. c.; 27th, 1680 c. c.; 28th, 2580 c. c.; 29th, 1590 c. c.; 30th, 1860 c. c.; 31st, 1500 c. c.; after which date the total amount was not again measured until February 8, when it was 2250 c. c.

Blood chemical examination of January 28, 1921, showed: Non-protein nitrogen, 30.0; urea nitrogen, 8.5; creatinine, 1.0; creatin plus creatinine, 6.0; blood sugar, 400.0; uric acid, 7.17; milligrams per one hundred cubic centimeters of blood, showing an increase in non-protein nitrogen, urea nitrogen, blood sugar and uric acid, with a marked decrease in creatinine and creatin plus creatinine. Owing to the tremendous increase in blood sugar the sugar was omitted in her diet.

The chemical examination of the blood, of February 8, 1921, showed: Non-protein nitrogen, 17.14; urea nitrogen, 12.0; creatinine 3.0; creatin plus creatinine, 5.0; blood sugar, 110.0; uric acid, 3.3 milligrams per one hundred cubic centimeters of blood. This examination showed that her blood chemical elements had become near to normal.

On January 20, 1921, her pulse rate was 118 per minute. The blood presssure was, diastlic 120, systolic 190. On January 28, 1921, her pulse rate was 76 per minute. The blood pressure was, diastlic 100, systolic 150.

On February 8, 1921, her pulse rate was 70 per minute. The blood pressure was, diastlic 90, systlic 140.

Her condition was so much improved that on February 9, 1921, she left the hospital and returned to her home with the instructions to take one light meal and two quarts of buttermilk daily.

She has reported to me frequently since leaving the hospital. On two occasions she ate too heartily of heavy food. Once she ate baked beans, which brought on an irritability of her heart. In a day or two after discontinuing the heavy foods she became comfortable. She is now able to take reasonable motor rides and assist with her housework.

Acknowledgments are due J. P. Frey, M. D., whose accurate and painstaking work made the chemical examinations reliable, and to Miss Alberta McCoy, whose interest and labor made possible the tabulations contained in this paper.

FETAL DYSTOCIA FROM FAULTY ATTITUDE AND FAULTY POSITION*

HARRY A. REESE, M. D., Bisbee, Arizona.

In the conservation of human life and the prevention of suffering, there is no better field than that of obstetrics. The able and conscientious obstetrician is of inestimable value to the nation and the race. Without his kindly help many more lives would be permanently lost, and much more suffering would befall motherhood. In normal labor all may go well under the care of the old Mexican "Granny", who hangs the image of San Gonzalo on the wall and dances around the room while bowing to the image and singing:

"San Gonzalo de mi amor,
Con un paso crusa el mar;
Hágame este milagro, Santo,
Y le prometo bailar."

Which means in English:

"Saint Gonzalo of my love,
With one step you cross the sea;
Do me this favor Saint,
And I promise to dance to Thee."

I say in normal labor all may go well, but not so in pathological labor. But there is one thing to be said in favor of the ignorant midwife: she has no hypodermic syringe loaded with pituitrin.

Pathological labor or dystocia is one which departs from the conditions of physiological labor. According to Edgar's classification, fetal dystocia may be due to: (1) faulty attitude; (2) faulty presentation; (3) faulty position; and (4) general fetal conditions. In this short paper we will not consider maternal dystocia. Faulty attitude or position of the fetus may be caused by anything which alters the normal shape of the fetal ovoid. Thus dystocia may be due to a faulty attitude caused by any deviation of the fetal head from the normal position of flexion.

According to the degree of extension present will be the variety of the malpresentation which will result. I need only mention these malpositions to refresh your memory, and no doubt you will recall some poor mother who suffered long and patiently before your kindly help was offered. 1. Excessive flexion of the head. 2. Bregma presentation (incomplete flexion). 3. Brow presentation. 4. Face presentation, 5. Presentation of anterior parietal bone or ear. 6. Presentation of posterior parietal bone or ear. 7. Prolapse of the arms. 8. Prolapse of the leg. 9. Prolapse of the cord. 10. Pelvic presentation. 11. Shoulder presentation. 12. Persistent occipito-posterior position. 13. Persistent mento-posterior position. 14. Transverse engagement of head in inlet in deformed pelvis. 15. Transverse position of head at outlet. 16. Multiple birth. 17. Multiple or compound presentation. 18. Malformations and deformities, etc., etc.

Wholly unnecessary, for the purpose of this short discussion,to describe each of these malpositions separately. Far be it from me to accuse any one of you gentlemen with the sin of ignorance, but I do accuse myself and others with the sins of carelessness. I do believe we make nine mistakes from carelessness where we need to make one from ignorance. In our obstetric work so many cases are normal that some of us just get careless. We seem to think: "Everything is all right. She's just a little slow that's all. If she does not do better after a few hours, I will give her a little pituitrin." A few more hours of needless suffering, and a shot of pituitrin, and the poor helpless parturient woman goes wild, and if, as too often occurs, there is some mechanical obstruction to delivery she may die from a rupture of the uterus. If not, after all this heartless cruelty, the attending physician may for the first

*Read before the Cochise County Medical Society, at Bisbee, Arizona, in March, 1922.

time take the pains to make a correct diagnosis of presentation.

I had attended approximately one thousand deliveries before I realized the frequency of occipito-posterior positions. How common they are may be indicated when I state that I found ten cases in the last one hundred deliveries which I attended just previous to this date (January 20, 1922). How many of these one hundred cases began labor with the occiput in the posterior position, and in which anterior rotation took place may be estimated by remembering that Edgar estimates that 20 per cent of all vertex presentations are occipito-posterior, at the beginning of labor, and DeLee believes that 29 per cent is more nearly correct. However, it is claimed that less than 5 per cent become impacted in the hollow of the sacrum.

DeLee says that 20,000 women die every year in our country from the effects of childbirth, and that nearly every mother carries the marks of injury inflicted during labor, and that 100,000 infants are annually lost during delivery. If a physician can not, or will not, lessen this mortality, pain, and injury, what is he good for, anyway?

My plea is for more painstaking care, that all malpositions may be diagnosticated and corrected early in labor, that hours of suffering may be saved the parturient woman, and that the mortality rate of both mother and child may be lessened. One can usually arrive at a correct diagnosis of occipito-posterior position without making a vaginal examination. How? By finding the fetal heart sounds nearly always, in 17 cases out of 20, on the right side of the mother, and above the anterior superior spine of the ilium early in labor, and slowly descending as labor progresses until it is faintly heard just above Poupart's ligament, low down in the mother's flank. Also you may note a hollow above the pubis. Of course, you wish to confirm your diagnosis by vaginal examination. By palpating the large, or anterior, fontanel, under the pubic arch, and the small fontanel deep down on the rectum. Owing to the usually large caput succedaneum, it is not always easy to outline the sutures, and, under these difficulties, the fingers are to be passed along side the fetal head until the ear can be grasped between two fingers. If the external ear is found pointing toward the mother's spine, your diagnosis is complete.

So the first important point is an early diagnosis that the mother may be saved hours of needless suffering. And that is not all. Turning the child is easy before the head is engaged. This is not so after the head, and body as well, are impacted in the bony pelvis. And the operation is doubly difficult if pituitrin has been given. Left to nature, a persistent occipito-posterior position is an almost impossible delivery. The child's neck is long enough in the anterior position to pass under the arch of the pubis, but in the posterior position, the three-inch neck can not traverse the five inches from the promontory of the sacrum to the tip of the coccyx, and the five more inches from the tip of the coccyx to the edge of the distended perineum without the body of the child passing into the pelvis with the head. In this way we have the fetal diameter almost doubled. What mother can possibly overcome such difficulties? I call such a position "impossible;" and that has been my experience with these unfortunate cases. But if the physician is called early, makes his diagnosis early, and corrects the malposition early, all is well.

The *treatment* is *rotation*. While it true that in the larger percentage of cases anterior rotation does take place spontaneously after hours of pain, in my humble opinion I would no more advise you to wait for nature to correct the malposition, than I would advise you to wait for nature to "cure" a case of acute appendicitis. I would waste no time for spontaneous rotation. I would waste no time with the woman in the knee-elbow position, or in the exaggerated lateral position. Neither would I depend upon external manual rotation alone; but, under ether anesthesia, I would introduce my whole hand into the vagina and my fingers

under the child's head and anterior to the shoulder. I would not grasp the shoulder, nor the body, but I would push the shoulder down toward the mother's hip on the side toward which the child's back rests. That is usually toward the mother's right hip. At the same time I use my left hand externally to turn the body of the child. Having pushed the baby's right shoulder down and toward the mother's right hip, I now turn the child's head either by grasping the head or by making pressure back of the ear, and at the same time lifting up on the back of the head. I prefer to turn the body first and then to grasp the head between my thumb on one side and my fingers on the other and turn the head with the occiput anterior, and then flex the head and hold it in position for a pain. The ether is now withdrawn, and the head is held flexed and in the anterior position until a pain or two engages the head in the pelvis. As a rule I am able to do this little trick without the rupture of the membranes. The membranes should not be ruptured unless it becomes necessary to apply forceps and deliver. I admit that my hand is very long, narrow, and flexible.

However, if you feel that your hand is too large for the manual rotation, you may follow the method of forceps rotation, as taught by Edgar, and others. I much prefer my hand. Just now I recall a case of occipito-posterior position in which ,without an anesthetic, I very gently introduced my hand and grasped the fetal head, waited until the pain was over and the uterus had relaxed, then I quickly pushed the head up and rotated and flexed it before the uterus had time to again contract. Two more pains delivered the baby's head.

NEWS ITEMS

The Maricopa County Medical Society held its final meeting for the season at the Adams Hotel, Thursday evening, May 19th. A dinner preceded the formal meeting, and was well attended by about fifty members and guests. Among the latter were Drs. Brooks and Loewy, of the U. S. Venteran's Hospital No. 50, at Prescott. Brief talks on the subject of the importance and functions of a county society were made by Drs. Smith, Watkins and Brockway.

At the scientific meeting, papers were presented by Drs. Haines, McLoone and Watkins. These three papers are the same as the corresponding speakers will present before the coming Arizona State Medical Association meeting, in Prescott and Jerome.

Moving pictures, showing the technic of Beck paste injections, and of an operation upon the upper jaw by Albee, preceded the papers.

Arizona Men at El Paso—Among the visitors and guests at the Texas State Medical Association meeting at El Paso were Dr. and Mrs. C. A. Thomas, of Tucson; Dr. H. A. Reese, of Bisbee, and Dr. Warner Watkins, of Phoenix.

Dr. H. P. Mills—Among the doctors who attended the American Medical Association meeting at St. Louis, was Dr. H. P. Mills, of El Paso, who also attended the meetings of the Radiological Society and the Radium Society, spending a few additional weeks in studying radiotherapy in the clinics of St. Louis.

Dr. John W. Flinn—The delegate from Arizona to the American Medical Association meeting at St. Louis, was Dr. John W. Flinn, of Prescott. An interesting report is expected from Dr. Flinn, at the forthcoming meeting in Prescott, regarding the reported threatened split in the Association over certain policies of the organization.

Southwestern Medicine

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Information of interest to all readers, together with directory of officers of the constituent societies and the Board of Managers of this magazine, will be found following the Table of Contents on pages 1 and 2 of the Advertising Section.

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THE ARIZONA STATE MEDICAL ASSOCIATION MEETING

The program which the Arizona State Medical Association will present, at Prescott and Jerome, on the 14th, 15th and 16th of this month, will be a notable achievement in the history of that organization.

In the first place, the Association, for the first time, will attempt a program which extends over three days. The Program Committee had this point under careful consideration, and finally concluded that the excellence of the program would justify this innovation. Very few of the state meetings are concentrated into two days, and, when the material is available, those who attend the Association at all should be glad to spend three days.

In the second place, a dual meeting will be held, in order that the two principal cities of Yavapai County may share in the privilege of entertaining the Association, and for the reason—more important to the members attending—that we may have the privilege of seeing both these cities, only thirty miles apart by auto, but in such different natural settings and of such different types of industry, that it will be like passing from one state into another. The beautiful auto highway now connecting these two cities makes this arrangement possible and altogether desirable, and the features of this arrangement will be highly pleasing and entertaining to those attending the meeting.

The program, as a whole, speaks for itself, but a word or two in explanation may interest those who are not acquainted with the expected visitors.

The Address in Medicine is to be given by Dr. Walter D. Sheldon, of the Mayo Clinic. Dr. Sheldon will be remembered as a former visitor to our Association several years ago, at that time addressing us on lung and pleural diseases.

The Address in Surgery will come on Friday and will be given by Dr. Clarence Moore, of Los Angeles, who is well known throughout Arizona, but comes to our Association for the first time, at least within my recollection.

On Wednesday afternoon, Dr. Max Rothschild, of San Francisco, will speak on the specific treatment of tuberculosis with partial antigens. Dr. Rothschild is one of the pioneers in tuberculosis work, especially in specific treatment and in pneumothorax methods.

On Thursday morning, Dr. Donald Frick, of Los Angeles, will present the subject of Angina Pectoris. Dr. Frick has visited our Association be-

fore and his many friends in Arizona will welcome him again. He will, of course, present the subject in his usual masterly manner.

Following Dr. Frick, Dr. Thomas H. Haines will give a summary of his work in Arizona, during the past several months, as the representative of the National Committee on Mental Hygiene. As he nears the completion of this work, so important to the medical profession of Arizona, Dr. Haines desires to leave his report in such shape as will be of the greatest service to the organized medical forces in furthering their legislative work in connection with mental deficiency in Arizona.

Dr. Nelson W. Janney, of Los Angeles, will bring to our attention a subject which no one is better qualified to present—that of endocrine disturbances. Dr. Janney came to California to take charge of the Carnegie Memorial Hospital's metabolic department, in Santa Barbara. After establishing this work on a firm basis, he resigned and entered private practice in Los Angeles. A paper on endocrine dystrophies is always interesting when presented by one who knows the subject, as Dr. Janney does.

In the meeting at Jerome, Thursday afternoon, the Symposium on Urology will be given, including papers by two of the most prominent specialists in this field in Los Angeles —Drs. Rosenkrantz and Roth, both urological surgeons. Dr. Vivian, of Phoenix, will have the diagnostic paper in this symposium.

In the evening, at Jerome, a slight diversion will be offered, and medicolegal problems will be studied in papers by the Association's attorney, Mr. Leroy Anderson, and by Dr. Win Wylie.

On Friday morning, in addition to the Address in Surgery, already mentioned, three prominent visitors will present papers. Dr. Murietta should hardly be classed as a visitor, although he has failed to visit us for so long, that he comes in this class. Formerly chief surgeon of the United Verde Hospital at Jerome, he will find many friends to greet him on this occasion.

Dr. Howard E. Ruggles, one of the nationally known roentgenologists, author of a text book in his specialty, will bring a subject which will be of keen interest to the surgeons in Arizona. Any subject on industrial surgery always commands attention in Arizona, and the usefulness of roentgenological methods in this connection is of particular interest.

Dr. E. G. Fishbaugh, of Los Angeles, is one of the better known internists of that city, being on the staff of the Good Samaritan Hospital, recently organized on a staff basis. Even the subject of constipation will develop hyperperistalsis under his treatment of it. This is the doctor's first visit to us, but those who are acquainted with him can lend assurance that his paper will present an important subject in an entertaining and interesting manner.

The golf tournament which will occur on Friday afternoon will be worthy of attention. The Hassayampa Club course is famous and well worth playing over. Let every "fiend" leave his dress suit at home and bring the golf bag instead; he will not regret it.

The full and detailed program will be found in this issue of SOUTHWESTERN MEDICINE. Visitors from any section of the southwest will be doubly welcome.

PROGRAM

GENERAL INFORMATION

The Headquarters and Registration will be at the Yavapai Club, which is very conveniently located with reference to the place of meeting.

The High School furnishes ideal facilities for the general meetings, having an excellent dark room for lantern slide demonstrations, with ample seating capacity.

Through the courtesy of the Commanding Officer of U. S. Veterans' Hospital No. 50, Whipple Barracks, and his staff, clinics will be held at this hospital on the mornings of June 14th and 15th, preceding the scientific sessions of the program. Opportunity will be given all members of the Association to see the work of this hospital in x-ray, clinical

examinations, and treatment, including artificial pneumothorax and heliotherapy.

JUNE 14th: A picnic-luncheon will be held at noon, at the Hassayampa Country Club, followed by bridge and a golf tournament for the ladies.

In the evening of June 14th, a dinner-dance will be given at the Yavapai Club.

JUNE 15th: A smoker-lunch and business session at the Owl for the open meeting of the House of Delegates, and election of officers.

After lunch, members of the Association and their ladies will be taken by auto to Jerome, 30 miles distant, over one of the finest roads in the state. Through the courtesy of the chief surgeon and management of the United Verde mine, members will be taken to the 500-foot level, where a contest will be held between the teams of the United Verde and the United Verde Extension companies, in mine rescue work. The details of this contest will be arranged by a committee of the Medical Association, who will act as judges and make awards.

The visiting ladies will be entertained by the ladies of Jerome.

JUNE 16th: Luncheon at noon for visiting Rotarians.

At 1:30 p. m., the Medical Association Handicap Golf Tournament will be held at the Hassayampa Country Club, Prescott. The Yavapai County Society will present a trophy to the winner. This tournament will be open to all medical men attending the Association meeting.

An excursion to the Grand Canyon will be arranged for June 16th and following days, if a sufficient number signify a desire to take the trip.

WEDNESDAY MORNING, JUNE 14th.

8-9 a. m.—Registration.
8 a. m.—Meeting of Council.
8:30 a. m.—Meeting of House of Delegates.

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9 a. m.—SCIENTIFIC PROGRAM.

1. *"Abscess in the Lung"*—Meade Clyne, Tucson.
   Discussion opened by I. D. Loewy and Clarence Moore.
2. *"Thoracoplasty"*—Willard Smith, Phoenix.
   Discussion opened by Meade Clyne and L. A. W. Burtch.
3. ADDRESS IN MEDICINE. *"Tuberculoma of the Brain"*—Walter D. Sheldon, Rochester, Minnesota.
4. *"The Early Diagnosis vs. Positive Diagnosis in Tuberculosis"*—W. O. Sweek, Phoenix.
   Discussion opened by Spencer D. Whiting and A. D. Wilson.

11:30 a. m.—Take cars through Whipple and immediately out to the Country Club for picnic-luncheon.

WEDNESDAY AFTERNOON, 1:30 p. m.

5. *"Gland Therapy in Tuberculosis"*—F. H. Redewill, Phoenix.
   Discussion opened by C. A. Thomas and A Wallace.
6. *"The Treatment of Pulmonary Tuberculosis with Partial Antigens"*—Max Rothschild, San Francisco.
   Discussion opened by S. H. Watson and John W. Flinn.
7. *"Value of Blood Chemistry to the Practitioner"*—P. B. Newcomb, Tucson.
   Discussion opened by W. W. Watkins and Geo. E. Goodrich.
8. *"The Fallibility of Clinical Laboratory Methods"*—W. Warner Watkins, Phoenix.
   Discussion opened by E. A. Gatterdam and H. L. Goss.
9. *"The Relation of Nasal and Accessory Sinus Disease to Asthma"*—J. J. McLoone, Phoenix.
   Discussion opened by W. A. Schwartz and C. R. K. Swetnam.
10. *"Food Addition Method in Asthma"*—O. H. Brown, Phoenix.
    Discussion opened by C. E. Rooney and E. W. Phillips.

1:30 to 4:30—Bridge and golf for visiting ladies at the Country Club.

WEDNESDAY EVENING, 7:30 p. m.

Dinner-Dance at Yavapai Club

Address of Welcome—Morris Goldwater, Esq., Mayor of Prescott.

Address of Welcome—H. W. Heap, Esq., President Chamber of Commerce.

Address of Welcome—Gail D. Allee, Commanding Officer, U. S. Veterans' Hospital No. 50.

Address of Welcome—John W. Flinn, for Yavapai County Medical Society.

Response—W. V. Whitmore, Tucson.

Address—Honorable Thomas E. Campbell, Governor of Arizona.

President's Address—A. L. Gustetter, President Arizona State Medical Association.

THURSDAY MORNING, JUNE 15th

8 to 9:15 a. m.—Clinics at U. S. Veterans' Hospital No. 50, Whipple Barracks.

9:30 a. m.—SCIENTIFIC PROGRAM

11. *"Henoch's Purpura, Report of a Case"*—James R. Moore, Clemenceau.
Discussion opened by A. G. Schnabel and James Thom.

12. *"Angina Pectoris—With Review of Cases"*—Donald J. Frick, Los Angeles.
Discussion opened by Gail D. Allee and F. T. Wright.

13. *"Mental Hygiene in Arizona"*—Thos. H. Haines, Phoenix.
Discussion opened by Thos. Cummins and H. P. Mills.

14. *"Infantile Spastic Paralysis"*—R. D. Kennedy, Globe.
Discussion opened by A. M. Tuthill and E. M. Tarr.

15. *"The Diagnosis of Certain Endocrine Dystrophies'"*— (Illustrated by lantern slides)—Nelson W. Janney, Los Angeles.
Discussion opened by Geo. A. Bridge and E. Payne Palmer.

12:15—Luncheon at Owl. Open meeting of the House of Delegates.

1:30 p. m.—Leave for Jerome.

3:30 p. m.—Arrive at 500-foot level of mine.

Contest between teams of the United Verde and United Verde Extension companies in mine rescue work.

Visiting ladies will be entertained by the Jerome ladies.

5 p. m.—SCIENTIFIC PROGRAM
(AT JEROME)

16. *"Kidney Function"*—Charles S. Vivian, Phoenix.
Discussion opened by P. C. Christian and H. A. Rosenkranz.

17. *"Some Experience in Surgery of the Prostate"*—Herbert Augustus Rosenkranz, Los Angeles.
Discussion opened by C. S. Vivian and Nelson C. Bledsoe.

18. *"Some Observations from the Clinical and Laboratory Findings in Pyelitis and Pyelonephritis"*—Leon Joseph Roth, Los Angeles.
Discussion by C. S. Vivian and V. A. Smelker.

THURSDAY EVENING, 7 p. m.

Dinner-Smoker at Jerome.

SCIENTIFIC PROGRAM

19. *"Development and Maintenance of Breast Milk"*—E. M. Tarr, Phoenix.
Discussion opened by A. T. Kirmse and Albert H. Schermann.

20. *"A Criticism of Medical Expert Testimony"*—Win Wylie, Phoenix.
Discussion opened by Howard Cormick and Willard Smith.

21. *"Medico-Legal Problems in Arizona"*—LeRoy Anderson, Esq., Prescott.
Discussion opened by John E. Bacon and W. A. Holt.

FRIDAY MORNING, JUNE 16th

8:30 a. m.—SCIENTIFIC PROGRAM

22. *"Anesthesia—and the Anesthetist"*—H. R. Carson, Phoenix.
Discussion opened by John W. Flinn and W. V. Witmore.

23. *"Sacral Anesthesia"*—A. J. Murrieta, Los Angeles.
Discussion opened by John D. Brooks and H. R. Carson.

24. *"Osteomyelitis, with Report of a Case"*—J. B. Nelson, Mesa.
Discussion opened by R. D. Kennedy and Win Wylie.

25. ADDRESS IN SURGERY—*"History of the Diseases of the Thyroid and Development of Surgical Treatment"*—Clarence Moore, Los Angeles.

26. *"X-Ray Therapy of the Tonsils and its Limitations"*—W. W. Wilkinson, Phoenix.
Discussion opened by C. R. K. Swetman and Howard E. Ruggles.

27. *"Roentgenology in Industrial Medicine"* (Illustrated by lantern slides)—Howard E. Ruggles, San Francisco.
Discussion opened by W. W. Watkins and W. E. McWhirt.

28. *"Roentgen Findings in the Common Bone Lesions"*—(Illustrated by lantern slides) James Thom, Jerome.
Discussion opened by W. E. McWhirt and W. W. Watkins.

29. *"Delayed Bowel Movement Type of Constipation"* — (Illustrated by lantern slides)—E. G. Fishbaugh.
Discussion opened by Willard Smith and Walter D. Sheldon.

FRIDAY AFTERNOON

Arizona State Medical Association Handicap Golf Tournament on the links of the Hassayampa Country Club, Prescott.

Open to all medical men attending the meeting.

THE TEXAS STATE MEDICAL MEETING

Those men in Arizona and New Mexico who failed to attend the Texas State meeting at El Paso missed a rare treat.

As a study in coordinated and concerted effort, by a municipality, in entertaining an organization, it was well worth going many hundred miles to witness. Apparently, the city of El Paso had no other business on hand, during that week, except the entertainment of the hundreds of doctors from Texas and distant points.

The El Paso County Society can look back with pride and satisfaction on their work. Besides the unique accomplishment of housing the entire association in all its departments, together with the scientific and commercial exhibits, under one roof, the Society entertained the hundreds of visitors and their ladies in a royal and characteristic manner. About six hundred registered for the scientific sessions, which were divided into six sections, conveniently grouped and arranged, so that members and visitors could usually attend more than one section during a day, without missing portions of the program.

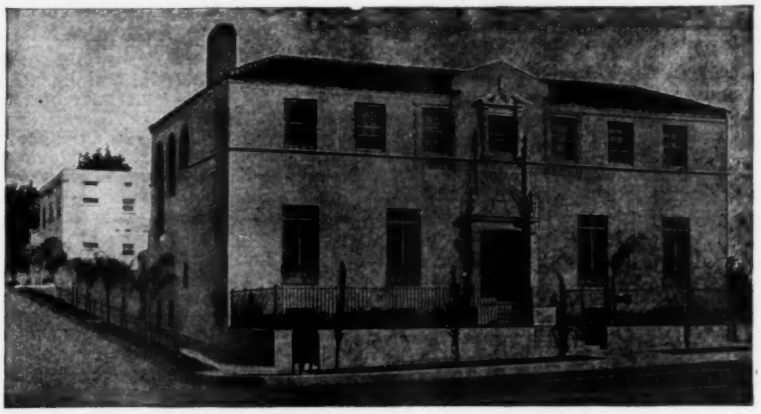
On the day preceding the Texas State meeting, three auxiliary organizations held their programs, namely, the Texas Roentgen Society, Texas Pathological Society, and the Texas Society of Railway Surgeons. These were all well attended and presented excellent programs. They united for a banquet in the evening, at which the speakers and guests of honor were Drs. Bloodgood of Baltimore, Case and Pritchards of Battle Creek, and Watkins of Phoenix.

A unique and very appropriate feature of the program was the memorial service on Tuesday evening, at which the names of the doctors who had died during the year were read and volunteer testimonials of appreciation offered by friends who had known them.

On Wednesday afternoon, a barbecue was held in Juarez, at the race track, which was attended by hundreds of the doctors. Later in the same evening, the President's reception was held. The President of the Association was held up by the flood waters which were raging at the time at Fort Worth and other points in central Texas. He did not arrive in time for any portion of the meeting, which was presided over by the Vice-President.

One of the most striking features connected with the meeting was the liberal attention given it by the newspapers—secured through the efforts of the Publicity Committee of the El Paso County Society. Not only were there liberal advance notices of the meeting, but the sessions were well

(Continued on page 154)



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Medical Director

covered by reporters and very complimentary, as well as educational editorials appeared from time to time during the meeting. This was a feature which was very pleasing and reflects great credit on the standing of the El Paso profession in the public eye of that region.

The scientific programs were of the highest possible type, the rule of that Association being that every paper presented must have been read before a constituent county society, and have the approval of that society for its presentation before the State Association. This insures a program which is equal, in excellence, to that which the American Medical Association presents and which is much easier to attend, on account of the fewer sections and more compact arrangement.

BOOK REVIEWS

INFANT FEEDING: By Clifford G. Grulee, M. D., L. L. D., Associate Professor and Acting Head, Department of Pediatrics at Rush Medical College. Fourth Edition, Thoroughly Revised. Octavo of 397 pages, illustrated. Philadephia and London: W. B. Saunders Company, 1922. Cloth, $4.50 net.

This volume on Infant Feeding should be a valuable asset to the general practitioner and student. The subject matter is presented in very good form, readable and is readily understood. The chapters dealing with infant feeding and the nutritional disturbances of the artificially fed infant are especially well treated under the respective headings of weight disturbance, Dyspepsia, Decomposition and Intoxication. The author has added much from his years of practice to the practical as well as the scientific principles which underlie infant feeding today. He puts forth the practical application of these principles in such a way that the practicing physician can grasp them and make use of them with decided benefit to his younger patients as well as to his own reputation.—V. S. R.

A TEXT-BOOK OF GENERAL BACTERIOLOGY—(By Edwin O. Jordan, Ph. D., Professor of Bacteriology in the University of Chicago and in the Rush Medical College. Octavo of 744 pages, fully illustrated. Philadelphia and London. W. B. Saunders Company, 1921. Cloth, $5.00 net. W. B. Saunders Company, Philadelphia and London.

Bacteriology is a subject in which changes are taking place so frequently that it is imperative for the up-to-date physician to have a text of comparatively recent revision. The seventh edition of Jordan's text-book of General Bacteriology has just appeared. The first edition was printed in 1908, and has been revised every two years with several additional reprintings. This indicates the desire of the author to keep his work in the foremost rank, as well as the demand by an appreciative profession.

The work, as revised, contains exact up-to-date and reasonably comprehensive data covering the scope of medical bacteriology in its entirety. Charts and classifications are complete and detailed. The chapters on streptococci, pneumococci and typhus fever have received extensive revisions. Possibly nothing in the work attracts our attention so quickly as the puzzling subjects of influenza and the anaerobes, and the common verdict will be that the author has handled them in a very logical as well as possibly diplomatic way. An especially commendable feature of the book is the frequent reference that bacteriology bears to the industries and technological pursuits from the household and agriculture to sanitary engineering. The text is accompanied by many bibliological references of value to investigators. It contains information that must form part of the armamentarium of every worker along medical lines.

We bespeak for this edition the same appreciative reception as in the past.—E. B. R.

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We have several extra copies of all numbers of Volume VI of SOUTHWESTERN MEDICINE. If any member of either of the constituent Societies which support the journal has not received all numbers of the present volume, beginning January, 1922, and will so advise the Managing Editor, the missing numbers will be supplied, without additional cost. Address, Managing Editor, Box 1328, Phoenix, Ariz.

STATE MEDICINE FROM A HEALTH OFFICER'S VIEWPOINT*

DR. G. S. LUCKETT, State Director of Public Health, Santa Fe, N. M.

There are two simple words which, used singly, can stir in us emotions of pride and pleasure, but, when united, seem to bear a fearful connotation that chills our hearts. They are, "State Medicine." In parts of continental Europe, the thing is an accomplished fact, while the great Anglo-Saxon nation from which we sprang is even now in the midst of a comprehensive experiment on a national scale. Susceptible, as we Americans are, to the eternal lure of "something for nothing," it is not strange that the idea has taken hold among some elements of our own people and that there is being fostered an organized propaganda to introduce something of the sort into our government machinery. In fact, the matter has gone so far that we see, almost weekly, some medical society here or there denouncing the movement in vehement terms. Broadly speaking, we are passing through the first stages common to all great social schemes, that of active opposition. That such a method of approach is unintelligent; that it is well designed to hasten the realization of our fears, and that the movement can be turned to our own advantage, are the chief propositions of this paper.

What is this thing we call "State Medicine"? Superficially, we see consultants, specialists, general practi-

**Read at the Fortieth Annual Session of the New Mexico Medical Society, at Gallup, N. M., April 28th and 29th, 1922.*

tioners, nurses, midwives, clinics, dispensaries and hospitals supported by the State, with sick benefits, maternity benefits, food allowances, and other material assistance, all combining to give relief to that portion of the community receiving the smallest compensation for its labor. But, stripped of its paraphernalia, what is the real essence of "State Medicine"? Is it not fundamentally the application of the simple proposition that "every benefit of the art and science of medicine should be made available to **all** of the people"? It is simple, when we look at it that way, and a doctrine to which we can all subscribe. What we really fear about it is not the principle, but the mode of application. We all agree that there are some who cannot afford to provide themselves or their families with what is considered adequate medical care, but when it comes to determining just who those people are, there is no agreement whatever. Nor is there much provision made for them, once they are sifted out, save through charity.

Is it any wonder that a social movement of this sort should have arisen? The public has begun to distinguish good medical care from the indifferent sort. It has discovered the advantage of hospital over home treatment. And it recognizes the fact that only the very wealthy and the very poor can secure all of these things under our present system. Meanwhile, the great "middle class," those who have moderate incomes, who maintain their self-respect, who try to pay their bills, who support themselves without asking aught of anyone, this most numerous group in our population must be satisfied with mediocre medical attendance, or mortgage the future to pay the doctor. By way of illustration, take the young man with primary syphilis, who is making $75.00 a month and attempting to support a dependent relative. Can he afford to pay $25.00 for a single treatment with arsphenamine, when he must receive perhaps ten to twenty such treatments in the course of a few months? This is not an extreme case, but one that has actually come to notice recently. Furthermore, should he be cast off, to receive charity from the community, when his funds have been exhausted? Is it surprising that he, and millions of his fellows, should feel that there is something wrong with our system and should attempt to take matters into their own hands? Gentlemen, there is but one conclusion—that the medical profession is standing in its own light and is largely responsible for the rising ferment in the public mind.

Such a proposition calls forth an instant negation. But, let us be honest with ourselves. What have we done to meet this insistent demand for a more complete medical service on the part of the elements we have mentioned? The reply is iterated and reiterated that "no one will ever be allowed to suffer," and we must hasten to acknowledge that altruism which has always marked the medical fraternity. But there is no escaping the fact that it is charity. We do not suit the charge to the patient's means; it is the fee list or nothing. And this "middle class,' wage earning fellow does not want charity. He wants to pay what is a reasonable portion of his earnings and maintain his self-respect. Fortunately, the problem has been recognized in some quarters and scattering attempts are being made to solve it. A notable example is the pay clinic, found in some of our larger cities, where a person of moderate means may secure expert attention at specific hours and for fees within the limits of his purse. However, such efforts are at present too desultory to make any real impression and only serve to emphasize the problem. What is needed is a thoroughly organized movement, on a national scale, **within the medical profession itself,** to remedy the need, before the initiative is taken entirely from medical hands. When we contemplate the organized fight against tuberculosis, in its many phases, and the child health campaigns, we see

that they have been sponsored largely by laymen. The health insurance laws of England were brought about by non-medical groups. In all of the efforts at social and physical betterment which we can recall, is it possible to name one that has had its origin in the medical profession and that has been supported entirely by that body? Unfortunately, we shall have difficulty in pointing to an example. The physician is intensely individualistic; he focuses his attention upon the single case and on his small round of activities; he finds it difficult, by reason of his training, to see his case multiplied by thousands; he is not at all socially minded. But this is no reason why we should sit supinely by and see our prerogatives snatched from us.

What is the chief prerogative of the profession? Is it not to act as expert adviser to the world on the causes and cure of disease? True, we are doing this now in our own little group, reserving always the right to select our patients and to leave the rest "for someone else." But, by doing this, we are losing the larger opportunity and are opening the way for inexpert hands to seize the reins. Perhaps it is easier for one not in active practice, yet who has the future of medicine deeply at heart, to see these developments. In our own field of public health we are somewhat more sensitive to popular feeling and are the recipients of much of the criticism of the profession that does not come to the physician's ears. And this very fact places the sanitarian in a position where he can render valuable aid to his colleagues.

Organized public health work has developed in response to popular demand. It is axiomatic that we can go no further than public opinion permits, and, conversely, we must keep abreast of public sentiment or yield to others who will. By reason of this fact and the very nature of our work, we are compelled to think of the group, of the general good, rather than of the individual. To one so situated, need of more adequate medical provision for a great portion of our people is obvious and the demand is scarcely to be denied. As a result, it has come about that the health departments have taken upon themselves some of the prerogatives that really belong to the medical profession, but that have been neglected by them. Free clinics, health centers, and the like, are merely attempts to meet a social need that was urgent and that had not been met by the organized profession. Instead of being a constant bone of contention, could not these things become the small beginnings, the nucleus, about which a comprehensive plan for adequate, non-compulsory medical care of the whole population might be built? Could not each local medical society form itself into something in the nature of group practice, handling every therapeutic need of the community, while the health department dealt with its own specialty of prevention? In the present state of the profession this may seem like a rosy dream from the heart of a Chinese poppy, especially since it means less of competition and more of cooperation among physicians. But is it such in truth? Must we not make a beginning? And is it not better to begin with what is already at hand, adding a little here and there as we develop our ideas? It would not be so difficult to take over the work of the free clinics for venereal disease, for eye, ear, nose and throat defects, for the care of infants and young children, and for prenatal care. Upon these could be developed what is known as a pay clinic, with its specialties and expert consultation, its laboratory and x-ray services, all for a moderate fee, which would go into a common fund for the payment of fixed salaries to the attendants. Beyond this is the great field of preventive medicine, where the physician and the health officer meet on common ground. Here we find the well baby clinic, the life extension examination, the administration of prophylactic measures, and the like.

What is proposed does not mean the yielding up of vested rights by